

1 What is claimed is:

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3 1. A system for use with standard defibrillators that includes high surface area electrodes designed  
4 to be used internally or externally to form a variety of shock vector configurations better  
5 described as single dimension, two dimension and also three dimensional, the system consisting  
6 of:

- 7  
8 i. a safe junction box equipped with passive semi-conductor like circuit designed to protect  
9 patient from unsafe voltages by diverting the excess and only the excess energy away  
10 from the electrodes but only in certain selection settings;  
11 ii. a switch mounted on the safe junction box designed to redirect the energy supplied by the  
12 defibrillator to one or more electrodes depending on choice that will always include at  
13 least two and at least the option to switch back to external for safety; the second option  
14 being directed through patient protective circuitry that limits the voltage but never stops  
15 all the voltage to ensure therapy is delivered to terminate life threatening arrhythmia or  
16 none life threatening arrhythmia;  
17 iii. internal electrodes mounted on a catheter or lead made so that current densities to be used  
18 at the surface of the electrodes never exceed 2 Amp per centimeter squared;  
19 iv. external electrodes mounted on the skin of the patient and requiring no blood or other  
20 internal body fluid contact; and  
21 v. the entire system being passive in nature because all energy required to defibrillate is  
22 supplied by another box (standard field defibrillator) or integrated with its own pulse  
23 generating circuitry that has been designed to isolate internal shocks from external shocks  
24 so that a patient can never be accidentally be shocked with energies that would result in  
25 the electrodes located in the heart having greater than 2 amps per centimeter squared of  
26 energy.

2. The system of claim 1, wherein a catheter is located in the right atria and a separate catheter is located in the right ventricle and a shock vector is created for terminating ventricular tachycardia or ventricular fibrillation.
3. The system of claim 1, wherein a catheter is located in the right atria and a separate catheter is located in pulmonary artery and a shock vector is created for terminating atrial tachycardia or ventricular fibrillation.
4. The system of claim 1, wherein a single catheter is provided with three electrodes and said electrodes are located in the right atria, right ventricle and pulmonary artery and a shock vector is created for terminating atrial tachycardia or ventricular fibrillation, the direction of the shock vectors being varied using the safe switch box selector knob that redirects the path of energy.
5. The system of claim 1, wherein a single catheter with two electrodes and said electrodes is provided are located in the right atria and coronary sinus and a shock vector is created for terminating atrial tachycardia or atrial fibrillation.
6. The system of claim 1, where one of the preferred embodiments for managing unsafe energy is a metal oxide varistor that limits energy by way of limiting voltage for the internal electrodes, the desired limit being adjustable by properly specifying the metal oxide varistor so that surface area current densities never exceed 2 amps per centimeter squared.